USGS

WATER RESOURCES RESEARCH GRANT PROPOSAL

Title: Approaches to Reduce Taste and Odor Problems in Drinking Water

Focus Categories: WQL

Keywords: 8, 75, 89, 265

Duration: The work will begin as soon as the grant is awarded and will conclude by February 27, 2000.

FY 1999 Federal Funds: $ 9 ,946

FY 1999 non-Federal Funds: $35,818 Arizona State University $ 9,900 City of Chandler

Principal Investigator's Name and University: Milton R. Sommerfeld, Arizona State University

Congressional District of the University Where the Research is to be Conducted: Districts 1, 3 & 4

Statement of Critical Regional or State Water Problems

Taste and odor problems associated with drinking water are pervasive problems for many municipalities. Suffett et al. reported that 22 percent of the water providers surveyed in a national study reported taste and odor problems in their source waters. Taste and odor problems have been traced to both planktonic and benthic algae in surface impoundments and in distribution networks, including canals (Izaguirre et al.; Means and McGuire; Izaguirre and Taylor).

Municipalities in the Phoenix Metropolitan area have experienced taste and odor problems for many years, but the problems appear to be increasing, especially beginning in late summer and extending well into winter.

Water treatment costs for taste and odor problems alone have become exorbitant and consumers are more outspoken about expectations of receiving water that tastes and smells good, as well as is safe to drink. Two compounds, 2-methylisoborneol (MIB) and geosmin, are the most commonly cited as departing unpleasant earthy/moldy tastes and odors to water. The source of these and other compounds associated with taste and odor is primarily blue-green algae (cyanobacteria) and certain fungi (actinomycetes).

Statement of Results or Benefits

The results should permit pinpointing specific locations in the water system where the sources of geosmin and MIB exist, and permit application of species-specific treatments and location-specific methods to reduce taste and odor causing organisms. This will reduce taste and odor complaints and treatment costs for the City of Chandler and other municipalities with similar problems.

The significance of this research will be to: 1) provide innovative and cost effective approaches to improving the quality of drinking water to consumers (especially in Chandler and in the Phoenix metropolitan area); and 2) demonstrate an effective working relationship between operators/practioners and scientists focused toward problem solution.